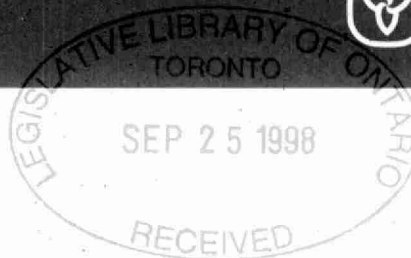


PROJECT PROFILE

GREEN INDUSTRIAL ANALYSIS



Provincial Papers Inc.

Thunder Bay, Ontario

"The Green Industrial Analysis allowed us the opportunity to trace where fresh water and energy are used in the mill, and to identify areas to reduce waste."

Douglas G. Chisholm, P.Eng.
Supervisor, Engineering
Provincial Papers Inc.

THE COMPANY

One of Ontario's oldest paper mills, Provincial Papers has been in operation since 1918. The company has gradually expanded its production and today makes about 145,000 tonnes of machine coated book and coated litho paper each year. The mill uses a mixture of bleached groundwood, recycled and purchased pulps. Peroxide is used in the bleaching process.

In 1993, a group of more than 700 employees bought the mill from Abitibi-Price.

THE CHALLENGE

In 1995, the Ministry of Environment and Energy and Provincial Papers retained the services of Sandwell Inc. to conduct a Green Industrial Analysis of the Thunder Bay mill. The company wanted to use the analysis to help set priorities and make plans for implementing capital and operating projects related to "green" opportunities. The focus was on finding ways to conserve resources and reduce contaminant discharges.

OPPORTUNITIES

One of the first opportunities identified by the consultant was to improve the air supply for the papermaking process. Currently, much of the air supply filters into the company buildings from outside. This causes uneven temperatures, icing problems, high air velocity in some locations and high energy costs to heat cold areas. Thus, improving the plant's air supply is an important opportunity.



Provincial Papers mill.

Another way for the company to improve its operations is to reduce its water use. Water has always been freely available from Lake Superior. After use, this water must be purified in the waste water treatment plant, before discharge into the lake. Any reduction in water use could reduce the operating costs of this effluent treatment plant.

Provincial Papers uses clay and titanium dioxide pigment to coat the paper. This produces the fine, white, glossy finish required for coated fine paper. Inevitably, some of the clay and titanium dioxide, as well as some fibre, end up in the solid sludge from the wastewater treatment plant. This sludge is currently landfilled beside the mill. Any recovery of clay and titanium dioxide from sludge would provide positive environmental and resource benefits.

RECOMMENDATIONS

The Final Report of the Green Analysis of Provincial Papers Inc. included the following major recommendations:

- * install mill air make-up units, to correct infiltration problems, uneven temperatures and air flows;
- * reduce groundwood mill fresh water use by recycling water collected from spills, overflows and used cooling water;
- * install cooling tower to cool white water (and discontinue cooling by adding fresh water);
- * recycle fresh water used for cooling;
- * install Zimpro wet air oxidation process for sludge from primary clarifier, to recover clay and titanium dioxide for reuse.

Technologies identified for business development opportunities in the pulp and paper sector included cooling towers, ultrasonic flow meters, air make-up ceiling distribution systems and wet oxidation for sludge destruction and recovery of ash and heat.

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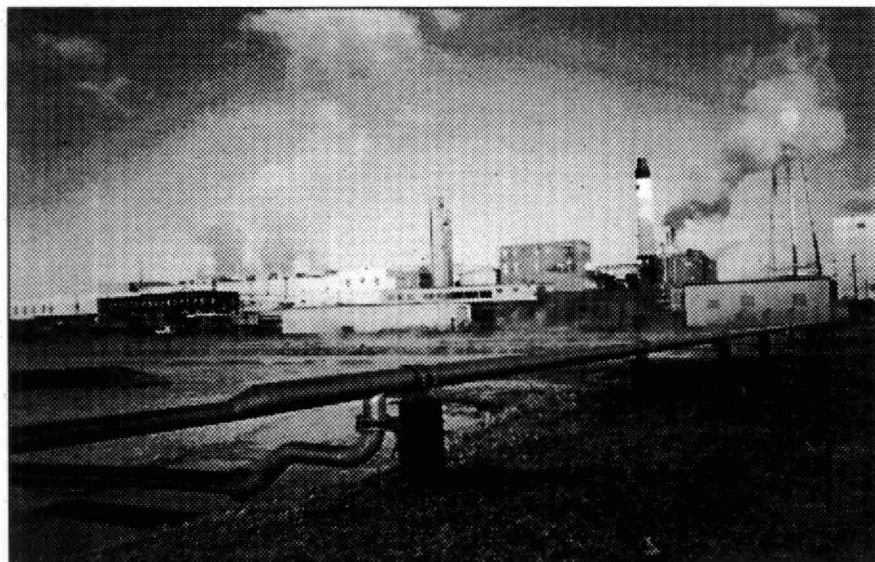
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POTENTIAL SAVINGS

The Green Analysis of Provincial Papers Inc. identified the following potential savings from the recommended improvements:

	Potential Annual Savings	Potential Savings as % of Total Plant Use or Production
Natural Gas	2,672,000 m ³	6 %
Mill Water	5,896,000 m ³	26 %
Liquid Effluent	5,896,000 m ³	49 %
Suspended Solids	49 tonnes	1 %
Fibre	49 tonnes	6 %

These improvements would require capital spending of about \$8.2 million.



The mill currently treats and discharges over 15 million cubic meters per year of liquid effluent.

MINISTRY OF ENVIRONMENT AND ENERGY SERVICES

For information on Ministry of Environment and Energy assistance to industry, please contact the Industry Conservation Branch at (416) 327-1492, Fax (416) 327-1261.

PARTNERSHIP IN POLLUTION PREVENTION AND RESOURCE CONSERVATION

Industrial companies doing business in Ontario may seek ministry/industry services that will help them to:

- * use energy and water more efficiently;
- * reduce, reuse and recycle solid waste; and
- * reduce or eliminate liquid effluents and gaseous emissions.

Equipment and service supply companies can benefit from the information provided on technologies identified for business development.

FOR FURTHER INFORMATION, PLEASE CONTACT:

Doug Chisholm
Provincial Papers Inc.
P.O. Box 2450
Shipyard Road
Thunder Bay, Ontario
P7B 5E9
Tel. (807) 683-2110
Fax. (807) 683-2372

(John) Chong Chai, P.Eng.
Sandwell Inc.
Suite 100, 1016B Sutton Drive
Burlington, Ontario
L7L 6B8
Tel. (905) 319-1666
Fax. (905) 319-1801

Tom Markowitz
Industry Conservation Branch
Ministry of Environment and Energy
2 St. Clair Ave. W., 14th Floor
Toronto, Ontario
M4V 1L5
Tel: (416)327-1443
Fax: (416)327-1261
E-Mail: markowit@ene.gov.on.ca

This project profile was prepared and published as a public service by the Ontario Ministry of Environment and Energy. Its purpose is to transfer information to Ontario companies about findings and recommendations of a resource conservation and environmental analysis conducted by a consulting engineering firm at an industrial plant in Ontario.

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